Designing an Instructional Module to Assist Third Grade Students in Creating Multimedia Presentations with EduGlogster

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Abstract: This study evaluated the design of a web-based instructional module targeted toward third grade students. The module was created to provide instruction to the elementary student in creating an interactive multimedia presentation using EduGlogster. The purpose of this instructional design module was to explore the characteristics of web-based instruction, which assists young learners in completing the web-based module successfully. Quantitative and qualitative data were collected in the form of surveys, as well as retrospective and likert scales. The results gathered from this study showed that the creation of web-based instruction for young learners takes careful consideration of previous knowledge, time-in-instruction, content, as well as delivery methods. These components may affect students' motivation levels and ability to successfully and independently complete instructional tasks.

Introduction

The 21st century learner's use of media technology is ever evolving with the constant technological innovations that are happening. Technology is prevalent in these digital natives' everyday lives (Prensky, 2007). Students use technology in the form of video games, laptops, smart phones, iPads, mp3 players, and do so regularly. As an elementary teacher during this innovative time, integration of technology is vital to meet the growing needs of today's learners.

New educational standards are also being implemented to support the use of technology in the classroom by students. These new standards play an important role in the need to integrate technology into the classroom. Not only is it important for educators to integrate technology into the classroom, teachers must integrate technology in meaningful ways, which allow students to solve problems, learn life skills, collaborate, and use higher order thinking skills (An & Reigeluth, 2012). Therefore, the purpose of this Instructional Design project was to develop and evaluate a web-based module targeted for third grade students. This module provides instruction to create a web 2.0 multimedia presentation using EduGlogster.

Forty-seven states across the United States are implementing the Common Core State Standards Initiative (CCSS). These new education standards have begun initial implementation and are to be fully implemented into classrooms by the 2014—2015 school year. These standards focus on the creation on products and the thinking processes of students, and are based on authentic performance assessments. The standards are relevant to the real world, reflecting the knowledge and skills students need to be prepared for their future, and success in college and careers. As these new standards are being implemented into schools across America, there is a need to make adjustments to instruction to meet them. In the CCSS Third Grade Standards for Language Arts students are required to use technology to share information. This standard led the creation of this module to create a multimedia project.

Research

Research has shown many benefits in the use of multimedia in education. The use of multimedia during project based learning (PBL) allows students to build their own meanings, encouraging independent learners (Royer, 2010). Images, audio, and video can enhance understanding of topics (Phan, 2011). Multimedia and hypermedia in the classroom allows students to process information in different ways, meeting the multiple intelligences of students (Roblyer & Doering, 2010). When students participate in research, evaluation of resources, synthesis of concepts, choosing appropriate media, and creating a product they are able to use higher order thinking skills (Royer, 2010). Multimedia allows users to create new ways to present information (Roblyer, 1999, Mayer, 1997). Recent research examining the use of web 2.0 multimedia tools for PBL pointed out the added benefit of collaboration and peer feedback through comments and social networking (Hammett & Toope, 2011).

> "Multimedia may have unique capabilities to facilitate learning, because of the link to multimedia and the natural way people learn, through visual information and imagery." (Bagui, 1998, 3-18)

The chosen Web 2.0 tool, which students will use in the completion of their multimedia project is EduGlogster (http://edu.glogster.com). EduGlogster is a Web 2.0 tool that integrates multimedia, project based learning, and social networking in a safe educational environment (Royer, 2010). EduGlogster provides a secured online environment for students to create multimedia posters using audio, video, text, hyperlinks, and graphics (Royer, 2010). It also provides students with the ability to view and comment on other students' creations, making it a collaborative process.

To allow students to create their own multimedia poster, instruction was needed to support student learning with or without teacher assistance. This

instruction would allow students to complete tasks independently and permit students to take charge of their own learning. A web-based module was created to enable students to do just that. To create an appropriate web-based module this instructional design study was conducted.

Theoretical Framework

The creation of the module was based upon theoretical framework of backward design (Wiggins & McTighe, 2001), the cognitive-behavioral theory (Gagne, 1985), and the social activism theory (Dewey, 1897).

This module was created using the backward design process. Backward design is an instructional design method, where the end product is focused on. It is part of the Understanding by Design framework and asks the questions "What enduring understandings do students need to develop?" Based on the response to this question instruction was created in three stages: (1) Identifying desired results, (2) determine acceptable evidence, and (3) plan learning experiences and instruction (Wiggins & McTighe, 2001).

Based on the cognitive-behavioral theory, learning is shaped by providing optimal instructional conditions (Gagne, 1985). In these conditions instructional activities must provide events to support learning and students must demonstrate they have learned prerequisite skills. In the best instructional setting the skills and content that are to be learned are clearly defined and a specific behavioral response can indicate learning. Therefore learning must be scaffolded, and be provided with clear learning objectives for students to meet.

According to the social activism theory, learning is individual growth shaped by social experiences. Dewey (1897) believed that humans are social from the start. Humans as a result can attain individual satisfaction and achievement only within the context of social habits and institutions that promote it. Thus, collaboration and discussion were identified to be important components to include in the student project. These methods guided the design and creation of this module.

Background

The author of this paper, a M. Ed. student and a third grade elementary school teacher, created the web-based module to find out if design and content experts indicated the module would assist students in completing instructional tasks successfully.

Participants

To discover if the tools were appropriate for the targeted population, six participants assessed the module. It should be noted that because the sample size was small, no inference should be drawn beyond the population studied. Participants were either experienced educators, experienced in the area of educational technology, or both.

The participants consisted of one high school teacher also knowledgeable of educational technology, three elementary school teachers, and two participants with experience in the area of educational technology.

Methodology

A module was created to support students in creating a web-based poster (see Figure 1). This poster will display the information which students will learn after completing a research study and writing an expository paper. To support students in creating their web-based poster the backward design process and cognitive behavioral theory were used to create this module. The end product was planned before instruction was created (Figure 1). This end product will require students to place text, an image, and a video of their researched animal onto their web-based poster (see Figure 2). Based on the end product, instruction was developed. Clear learning objectives were developed throughout the instructional module to support students. These objectives were provided both visually through text, as well as audibly through video instruction. Video instruction also allows students to see tasks they are expected to complete. The social activism theory led to the overall decision to include peer interaction and peer-feedback in the project after students complete the module. EduGlogster provides a comment section below each individual glog to make feedback personal and make learning more social and collaborative. This feature provides the opportunity for learners to provide feed-back.

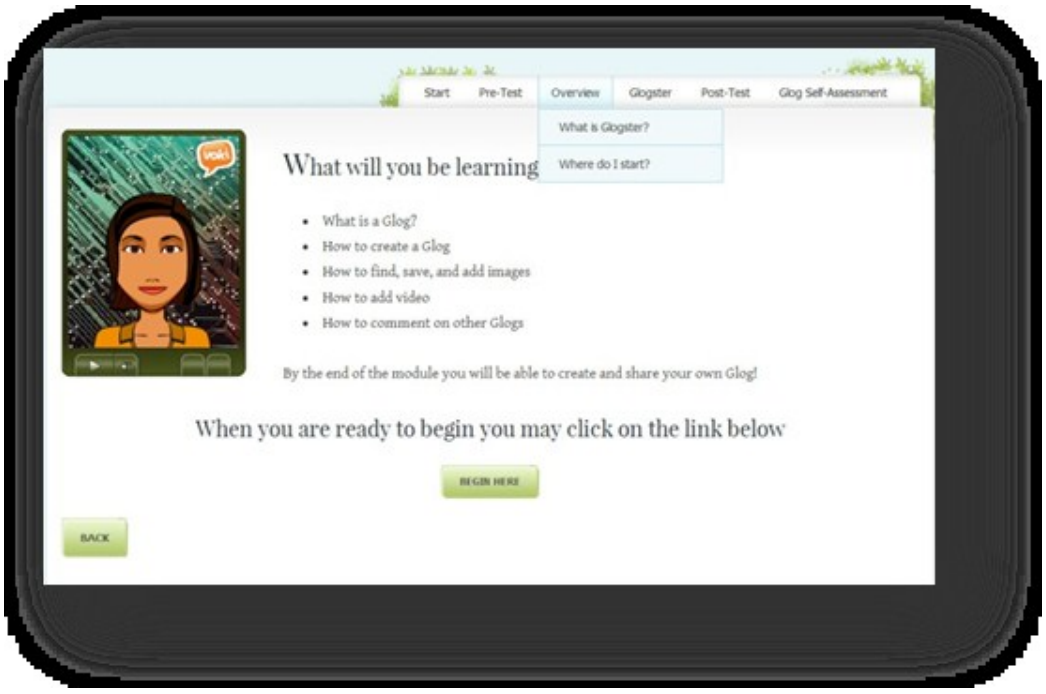

Figure 1. Module

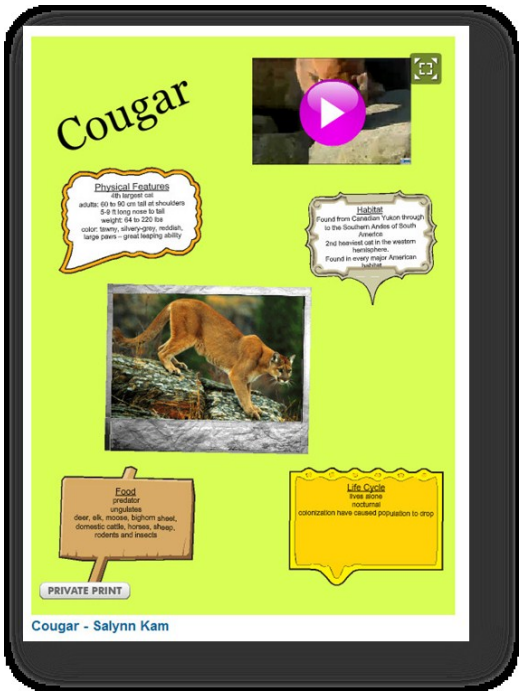

Figure 2. EduGlogster completed poster

Previous research of effective web-design led the creation of the module (Roblyer & Doering, 2010). Three areas were focused on in developing instruction – utility, usability, and aesthetics. The utility of the site, or ability to provide learners with content, tools, and necessary scaffolding they need to accomplish instructional tasks were accounted for in a few ways and accounted for the usability, or the ease of progressing through the module as well. With the use of animated, video, and text instruction, the module focused learners' attention, developed and maintained interests, and promoted processing of information. It promoted engagement between learner and content. The clearly labeled top tab of the module was created to help students find and organize information, as well as support easy navigation through lessons. Clearly labeled back and forward buttons were included throughout the module to support navigation. These factors enable learners to complete the module successfully (Stemler, 1997, Roblyer & Doering, 2010). A consistent color scheme was used to promote ease of use and make the module aesthetically pleasing to students. Animation was used sparingly and only to present dynamic processes or highlight key information. The material presented in the module was separated into chunks on each of several screens to make learning attainable (Roblyer & Doering, 2010).

The module consisted of fifteen small sections that were planned to take approximately four days to complete, and broken down into an introduction, pretest, overview, instruction in creating the multimedia poster, post-test, and self-assessment. These sections were designed to include video instruction in the form of short instructional videos as well as text instruction. Most of the videos were less than 3 minutes in length, with the exception of two videos which were five and six minutes long. These videos guide students in completing individual tasks before progressing on.

Data Collection and Analysis

Surveys followed each section of the module (see Figure 3). These surveys allowed the researcher to gather data regarding the appropriateness for a third grader to complete each section. Participants were gathered from a public Hawaii elementary school as well as from the universities' M. Ed. Technology program through an email solicitation.

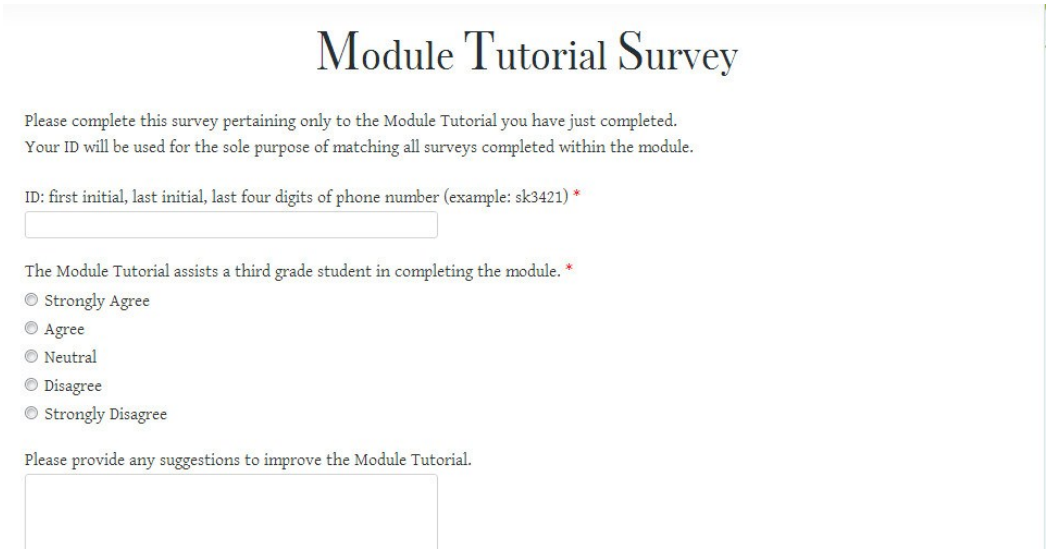

Figure 3. Surveys

The participants were interested in learning more about technology use with elementary learners. All but one participant in the study were comfortable using technology. One participant identified an indifferent feeling to using technology. Participants were also comfortable using web-based tools, where three identified being very familiar, and one identified being familiar with using it. When asked if multimedia tools would be used in instruction, participants were amiable towards using them in their class.

The following were opinions gathered from participants on the use of web-based multimedia tools in instruction:

- I think it would be awesome if all teachers did it.
- Long past due.
- Effective teaching tools & fun and engaging for all students.
- Beneficial when the resources are available.
- Try to assist teachers in doing this.
- Good thing – students spend a lot of time on the internet. It would fit naturally to do their learning on the internet as well.
- Necessary to motivate and engage learners.
- If it enhances and improves what I'm doing in the classroom I'm all for it.

- Highly benefits children and prepares them for their future of learning.

Participants began, and completed assessment of the module in a day. To begin instruction, the module included a tutorial page to assist students in navigating through the module effectively. The tutorial page provided instruction in viewing videos, animation, completing surveys and assessments, as well as moving on to following sections using "Back" and Forward" buttons. After participants reviewed the tutorial page, results suggest that the tutorial was beneficial in explaining how to correctly use the modules features before beginning the module, where only one participant identified an indifference to the need of tutorial page as an aid in allowing students to complete the module successfully.

Following the tutorial page a pretest was provided to assess students' knowledge of EduGlogster and the tasks needed to complete the EduGlogster project. After completing the pretest, participants progressed through the instruction to create an EduGlogster account. After completing the instruction, results indicated that participants felt students would be able to create their glog account with the provided instruction, but results also indicated the need of one-to-one help in creating a glog account.

- One participant responded - "I think that with the provided instructions, most 3rd grade students could create a glog account. However, there are going to be a few students who aren't going to understand and will need the teacher to walk them through the steps. Are the students going to be together in the Computer Lab, so the teacher can provide assistance or are the students expected to create their glog at home? Also, all 3rd graders are under 13 years old. Are all of the parents agreeing to let their child use (the) glog?"

- Another participant responded - "Is there a way to make the password easier for the students?"

After creating the glog account, instruction was provided to allow students to begin creating their glog. To guide students in creating their glog according to the requirements of the project a video delivered instruction. After participants viewed the instructional video participants completed a survey which showed the length of the video to be too long for a third grader to stay engaged. After looking over video run-time, the researcher discovered that the video was five minutes and fifty-seven seconds long, longer than all videos in the instructional module - most were under three minutes, with the exception of one video, which was four minutes and ten seconds in length.

Then participants viewed two instructional videos for finding and adding images and video to the glog. According to results from both instructional sections, the appropriateness for a third grade student was neutral. After reviewing video run-time, it was discovered that the video demonstrating instruction to find and save images to their glog ran four minutes and ten seconds. Comments also showed that the video lacked proper instruction to complete the entire task. Responses indicated that there would be a need for further instruction in saving images, as well as finding images, and indicated a

need for a paper based instructional guide for students to refer back to. The ability to navigate back and forth from instruction also proved to be a challenge. In saving video students may need to be given instruction before this segment in how to save video and locations to save video to.

- ...you didn't indicate what to save it under as you did in the image directions... for a 3rd grader watching the directions and then going to Glogster to use it would be confusing for them...I had to go back and forth from the module to make sure I was doing it right. Maybe have a print option for directions.

- The section on saving your work should be earlier. Because the instructions for saving came later, I didn't save my file according to the directions...

Instruction was also provided on how to comment on other projects in the class. The results from participants showed that the section was easy to understand, though one participant indicated the difficulty to complete the task, indicating the inability to find the comment section to comment on other students' work.

The module concludes with student post-assessments and self-assessments. The post assessment was similar to the pre-assessment and checked if students understood the tasks to complete the EduGlogster project. A self-assessment was also provided to allow students to review their own work before it was assessed by the instructor. Student self-assessment of products may be the most important component of the assessment process (Dipinto and Turner, 1995, Roblyer & Doering, 2010).

To complete the study, participants completed an attitudinal survey about the module. As a whole the participants participating in the module found the module to be clear and easy to understand, as well as easy to navigate through. Participants also indicated that the level of difficulty might be too hard for a third grade student to complete independently. One participant indicated that the module's length was too long for an elementary student. The module showed that participants of this study found EduGlogster easy to use. The participants also found that after completing the module they were able to learn about web-based multimedia tools

One participant indicated grammatical errors that may take away from instruction or lead to misunderstanding.

- "Fix the spelling error in 'Finging' (to 'Finding'). Add more explanation for saving your glog and where is the class glog site, so I can comment on other student's work."

Another participant indicated that the instruction should be broken into "more manageable 'chunks' for the students to make sure they are engaged." The participant went on to suggest, "Can you add Thinking Maps?" and noted that instructional methods that were helpful were "good tone of voice, voice pacing, good idea to see the video playing side by side as the directions went on".

Other participants shared these views:

- This module was aesthetically pleasing. It also gave clear information and easy to follow instructions. I am just concerned that the length of the module may be too long for 3rd grade students.

- If it is intended for a 3rd grader making the directions printable or showing them how to do a split screen so they can navigate between Glogster and the instructions.

Implications and Conclusion

To engage today's learners new ways of learning may be necessary. The multimedia project allows students with a way to share information and use higher order thinking skills. Web-based instruction was created to support students in creating a multimedia project. This study suggested that web-based instruction needs to take into account student prior knowledge. Findings indicated the need to take into account students' motivation. It suggested that the ability to remain engaged, when using web-based instruction may be linked to length of instructional videos related to completing tasks. This may require tasks to be broken into small chunks of instructional pieces to better maintain students' attention, and as a result teach concepts more clearly. The suggestions from participants also indicated that the ability to complete web-based tasks through web-based instruction may prove challenging for young learners because of the need to transfer from instruction located on one website to the task, located on another. Possible remedies would need to be developed in the school setting such as printable instruction as well as teacher support while students complete tasks. The study suggested that students may need one-to one instruction to complete web-based instructional tasks until more developed web-based instruction is created. As a result of these suggestions, this module will need to be delivered face-to-face in class to allow students to pose questions and receive support in completing web-based tasks.

Though this study was limited in scope and only provided suggestions in creating web-based instruction for young learners, the study did yield valuable data in future creation of web-based instruction. In order to gather more reliable results the need for larger scale studies and student participants are needed to make conclusions about the ability to provide effective web-based instruction to students in using multimedia to complete web-based tasks successfully.

Multimedia engages today's learners. Though it is encouraged to be used only when it supports the learning task, multimedia is an exciting tool to see students begin to use in the classroom. Effective instruction occurs when students co-create and develop their own knowledge (Royer, 2010). Web-based multimedia tools, such as EduGlogster provide students with the ability to produce and share their own understanding.

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